

What is Claimed is:

1. A method for suppressing differentiation of undifferentiated cells, comprising contacting said cells with a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7.

2. The method according to claim 1, wherein the undifferentiated cells are undifferentiated cells other than those of the brain and nervous system or muscular system cells.

3. The method according to claim 1, wherein the undifferentiated cells are undifferentiated blood cells.

4. A pharmaceutical composition comprising a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7.

5. A DNA coding a polypeptide comprising SEQ ID NO: 2.

6. The DNA according to claim 5, comprising DNA sequence 242-841 of SEQ ID NO: 8.

7. The DNA according to claim 5, coding the polypeptide having an amino acid sequence of SEQ ID NO: 3.

8. The DNA according to claim 7, comprising DNA sequence 242-1801 of SEQ ID NO: 8.

9. The DNA according to claim 5, coding the polypeptide having an amino acid sequence of SEQ ID NO: 4.

10. The DNA according to claim 9, comprising DNA sequence 242-2347 of SEQ ID NO: 8.

11. A recombinant DNA formed by ligating a DNA according to claim 5, and a vector DNA which can express in a host cell.

12. A recombinant DNA formed by ligating a DNA according to claim 6, and a vector DNA which can express in a host cell.

13. A recombinant DNA formed by ligating a DNA according to claim 7, and a vector DNA which can express in a host cell.

099539-1201
FOOT-165660

14. A recombinant DNA formed by ligating a DNA according to claim 8, and a vector DNA which can express in a host cell.

15. A recombinant DNA formed by ligating a DNA according to claim 9, and a vector DNA which can express in a host cell.

16. A recombinant DNA formed by ligating a DNA according to claim 10, and a vector DNA which can express in a host cell.

17. A cell transformed by the recombinant DNA according to claim 11.

18. A cell transformed by the recombinant DNA according to claim 12.

19. A cell transformed by the recombinant DNA according to claim 13.

20. A cell transformed by the recombinant DNA according to claim 14.

21. A cell transformed by the recombinant DNA according to claim 15.

22. A cell transformed by the recombinant DNA according to claim 16.

23. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 17, and isolating the compound produced in the cultured mass.

24. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 18, and isolating the compound produced in the cultured mass.

25. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 19, and isolating the compound produced in the cultured mass.

26. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 20, and isolating the compound produced in the cultured mass.

27. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 21, and isolating the compound produced in the cultured mass.

28. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1-7, comprising culturing cells of claim 22, and isolating the compound produced in the cultured mass.

29. An antibody specifically recognizing the polypeptide having an amino acid sequence of SEQ ID NO: 4.

30. A method for suppressing differentiation of undifferentiated blood cells comprising contacting said cells with a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1 and 5-7

wherein said amino acid sequence is encoded by a gene of human origin.

31. A hematopoietic activator comprising a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1 and 5-7 wherein said amino acid sequence is encoded in a gene of human origin.

32. A cell culture medium comprising a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 1 and 5-7 wherein said amino acid sequence is encoded in a gene of human origin.

33. The cell culture medium according to claim 32, wherein the cell is undifferentiated blood cell.

34. A recombinant DNA comprising formed by ligating a DNA according to claim 6, and a vector DNA which can express in the host cell.

35. A recombinant DNA comprising formed by ligating a DNA according to claim 7, and a vector DNA which can express in the host cell.

00995591.12001
T0621" E6556660

36. A recombinant DNA comprising formed by ligating a DNA according to claim 8, and a vector DNA which can express in the host cell.

37. A recombinant DNA comprising formed by ligating a DNA according to claim 9, and a vector DNA which can express in the host cell.

38. A recombinant DNA comprising formed by ligating a DNA according to claim 10, and a vector DNA which can express in the host cell.

39. A cell transformed by the recombinant DNA according to claim 34.

40. A cell transformed by the recombinant DNA according to claim 35.

41. A cell transformed by the recombinant DNA according to claim 36.

42. A cell transformed by the recombinant DNA according to claim 37.

43. A cell transformed by the recombinant DNA according to claim 38.

44. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 2 and 5, comprising culturing cells of claim 17, and isolating the compound produced in the cultured mass.

45. A process for production of a polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 2 and 5, comprising culturing cells of claim 39, and isolating the compound produced in the cultured mass.

46. A process for production of a polypeptide comprising SEQ ID NO: 3, comprising culturing cells of claim 40, and isolating the compound produced in the cultured mass.

47. A process for production of a polypeptide comprising SEQ ID NO: 3, comprising culturing cells of claim 41, and isolating the compound produced in the cultured mass.

48. A process for production of a polypeptide comprising SEQ ID NO: 4, comprising culturing cells of claim 42, and isolating the compound produced in the cultured mass.

49. A process for production of a polypeptide comprising SEQ ID NO: 4, comprising culturing cells of claim 43, and isolating the compound produced in the cultured mass.

50. A polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 5, 6 and 7, wherein said amino acid sequence is encoded in a gene of human origin.

51. The polypeptide according to claim 50, comprising an amino acid sequence of SEQ ID NO: 5.

52. The polypeptide according to claim 50, comprising an amino acid sequence of SEQ ID NO: 6.

53. The polypeptide according to claim 50, comprising an amino acid sequence of SEQ ID NO: 7.

54. A DNA coding a polypeptide comprising at least an amino acid sequence of SEQ ID NO: 5.

55. The DNA according to claim 54, comprising DNA sequence 502-1095 of SEQ ID NO: 10.

56. The DNA according to claim 54, coding the polypeptide having an amino acid sequence of SEQ ID NO: 6.

57. The DNA according to claim 56, comprising DNA sequence 502-3609 of SEQ ID NO: 10.

58. The DNA according to claim 54, coding the polypeptide having an amino acid sequence of SEQ ID NO: 7.

59. The DNA according to claim 58, comprising DNA sequence 502-4062 of SEQ ID NO: 10.

60. A recombinant DNA formed by ligating a DNA according to claim 54, and a vector DNA which can be expressed in a host cell.

61. A recombinant DNA formed by ligating a DNA according to claim 55, and a vector DNA which can be expressed in a host cell.

62. A recombinant DNA formed by ligating a DNA according to claim 56, and a vector DNA which can be expressed in a host cell.

63. A recombinant DNA formed by ligating a DNA according to claim 57, and a vector DNA which can be expressed in a host cell.

64. A recombinant DNA formed by ligating a DNA according to claim 58, and a vector DNA which can be expressed in a host cell.

65. A recombinant DNA formed by ligating a DNA according to claim 59, and a vector DNA which can be expressed in a host cell.

66. A cell transformed by the recombinant DNA according to claim 60.

67. A cell transformed by the recombinant DNA according to claim 61.

68. A cell transformed by the recombinant DNA according to claim 62.

69. A cell transformed by the recombinant DNA according to claim 63.

70. A cell transformed by the recombinant DNA according to claim 64.

71. A cell transformed by the recombinant DNA according to claim 65.

72. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 66, and isolating the compound produced in the cultured mass.

73. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 67, and isolating the compound produced in the cultured mass.

74. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 68, and isolating the compound produced in the cultured mass.

75. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 69, and isolating the compound produced in the cultured mass.

76. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 70, and isolating the compound produced in the cultured mass.

77. A process for production of a polypeptide comprising SEQ ID NO: 5, comprising culturing cells of claim 71, and isolating the compound produced in the cultured mass.

78. A polypeptide comprising a first amino acid sequence selected from the group consisting of SEQ ID NOS: 2, 3 and 4, and a second amino acid sequence from the group consisting of SEQ ID NO: 10 and Fc sequence below hinge region of human IgG, wherein said first amino acid sequence is encoded in a gene of human origin, and wherein said second amino acid sequence is linked to the C-terminal of said first amino acid sequence.

79. A DNA coding a polypeptide according to claim 78.

80. A recombinant DNA formed by ligating a DNA according to claim 79, and a vector DNA which can be expressed in a host cell.

81. A cell transformed by a recombinant DNA according to claim 80.

82. A process for production of a polypeptide comprising a first amino acid sequence selected from the group consisting of SEQ ID NOS: 2, 3 and 4, and a second amino acid sequence from the group consisting of SEQ ID NO: 10 and Fc sequence below hinge region of human IgG, wherein said first amino acid sequence is encoded in a gene of human origin, and wherein said second amino acid sequence is linked to the C-terminal of said first amino acid sequence, comprising culturing a cell of claim 81, and isolating the compound produced in the cultured mass.

83. A polypeptide comprising a first amino acid sequence selected from the group consisting of SEQ ID NOS: 5, 6 and 7, and a second amino acid sequence from the group consisting of SEQ ID NO: 10 and Fc sequence below hinge

region of human IgG, wherein said first amino acid sequence is encoded in a gene of human origin, and wherein said second amino acid sequence is linked to the C-terminal of said first amino acid sequence.

84. A DNA coding a polypeptide according to claim 83.

85. A recombinant DNA formed by ligating a DNA according to claim 84, and a vector DNA which can be expressed in a host cell.

86. A cell transformed by a recombinant DNA according to claim 85.

87. A process for production of a polypeptide comprising a first amino acid sequence selected from the group consisting of SEQ ID NOS: 5, 6 and 7, and a second amino acid sequence from the group consisting of SEQ ID NO: 10 and Fc sequence below hinge region of human IgG, wherein said first amino acid sequence is encoded in a gene of human origin, and wherein said second amino acid sequence is linked to the C-terminal of said first amino acid sequence, comprising culturing a cell of claim 86, and isolating the compound produced in the cultured mass.